

> Step 1

Let $X[0]=0$ and $X[1]=0$.

a)

Possible values if two processes execute coherently:

[2, 4], [3, 4], [2,5], [3, 5]

Possible value if two processes are not coherent: [1, 1]

> Step 2

b)

Possible values if two processes execute coherently:

[5,5],[6,5],[5,2],[6,2]

Possible value if two processes are not coherent: [1,2]

Step 1

Initially $X[0], X[1]$ is initialized to 0.

a) P1 Operation sequences:

read $X[0], X[0]++$ (increment $X[0]$ by 1) and write $X[0], X[1]=4$, write $X[1]$;

P2 Operation sequences:

$X[0]=2$, write $X[0]$; read $X[1], X[1]++$ (increment $X[1]$ by 1), write $X[1]$;

Step 2

b) P1 Operation sequences:

read $X[0], X[0]++$ (increment $X[0]$) and write $X[0]$; read $X[1]$,

$X[1] += 3$ (increment $X[1]$ by 3), write $X[1]$;

P2 Operation sequences:

$X[0]=5$, write $X[0]$; $X[1]=2$, write $X[1]$;

➤ Step 1

a) Total number of operations of both processes is 6 at the best case the miss is 1,
worst case it is 6 .

➤ Step 2

b) Total number of operations of both processes is 6 at the best case the miss is 1,
worst case it is 6 .

> Step 1

Initially A and B are 0

a) Initially C,D is 0

Initial write to A with 1 by P1 writes D with A by P2 thus [C, D] is [0,1]

consistent execution of P1 and P2 will have values of C,D as follows

[0,0],[0,1],[1,2],[2,1],[2,2],[2,3],[3,3].

> Step 2

b) Initially C,D is 0

Initial write to A with 1 by P1 writes D with A by P2 thus [C, D] is [0,1]

consistent execution of P1 and P2 will have values of C,D as follows

[0,0],[0,1],[2,1],[2,2],[4,2].

> Step 1

a) If inconsistent read write operations are performed

Initially values for C and D would be [2,0] as read to B by process then increment

B and 1 will update C with 3 and possible values are [3,0],[3,1],[3,2].

> Step 2

b) If inconsistent read write operations are performed the possible value is [4,0]

Step 1

The **Write-Through** and **non write allocate** combinations make protocol implementation simplify.